

## BRS Paiaguás: A new *Brachiaria* (*Urochloa*) cultivar for tropical pastures in Brazil

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### Introduction

Approximately half the world's beef is produced in the tropics and subtropics, almost exclusively on pasture. While the world production of beef and veal increased 91% over the past 40 years, the increase in the tropics was 200%. Brazil has today the largest commercial cattle herd in the world (about 190 M head) and is the world's largest exporter of beef. The area of cultivated pasture increased from 30 to 100 Mha between 1970 and 1995 (IBGE 2006). This area has now stabilized or decreased despite the increase in beef production, reflecting the gain in productivity per ha. Part of the cultivated pasture expansion till 1995 resulted from the replacement of native pasture, and part from the opening of the Brazilian Cerrados, but the main contributing factor to the increase in livestock production was the use of more productive cultivars and intensification in the management of cultivated pastures.

The demand for productive and high quality forages continues to be high. Very few cultivars are commercially available, and the majority of these display apomictic reproduction, resulting in no novel genetic variation. New cultivars are urgently needed to increase pasture diversification as insurance against the extensive monocultures formed in central Brazil. The cultivars released, mainly by Embrapa, were developed mostly by selection from the natural variability in germplasm collections, reflecting the success of this methodology, and account for over 70% of the forage seed available commercially. This paper presents data on a new cultivar of *Brachiaria brizantha*, selected for soils of medium fertility with a well defined dry season.

### Methods

Developing a new cultivar involves 2 years of agronomic evaluation in plots under a cutting regimen and morphological characterization of germplasm collections (about 100 accessions) to select the best 20–25 for regional trials (another 2 years) still in plots under cutting, to evaluate the genotype x environment interactions and finally, selection of the 2–4 most promising ones for use in grazing trials over another 2 years (Figure 1). Parallel trials are carried out to evaluate resistance to biotic (pests and diseases) and abiotic (tolerance of drought, flooding, shade, toxic Al in soils; response to fertilizers) stresses, and seed-production technology to gather the necessary information to properly recommend a new cultivar. BRS Paiaguás has been under evaluation at Embrapa Beef Cattle, Campo Grande, MS, Brazil for over 18 years and was derived from an accession introduced from Nairobi, Kenya, in a collection gathered by CIAT in 1984.

### Results and Discussion

Cultivar BRS Paiaguás was selected for its productivity, vigor and seed production and, although it has no resistance to spittlebugs (the most important insect pest in pastures in Brazil), it has high potential production during the dry season, with high leaf percentage and good nutritional value. In regional trials it showed high dry matter production, though lower than *B. brizantha* cv. Xaraés, with limited spittlebug damage in the plots. This cultivar is adapted to soils of medium fertility and behaves similarly to *B. brizantha* cv. Marandu in response to fertilizers. In grazing trials, when compared with *B. brizantha* cv. BRS Piatã, released as an alternative for dry season grazing, it showed even higher potential, since it has more forage growth and better nutritional value, resulting in higher animal gains per head and per unit area (Table 1).

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**Figure 1.** BRS Paiaguás in plots and in a pasture in Campo Grande, MS, Brazil (2013).

It is important to note that in the 2011 and 2012 dry seasons, BRS Piatã pastures had to be destocked for 2 months (August–September) owing to lack of available forage, while BRS Paiaguás remained stocked and maintained animal gains. Average daily gains (ADG) and carrying capacity were higher ( $P < 0.05$ ) on BRS Paiaguás during the dry season. Overall ADGs for the 3 years of evaluation for BRS Paiaguás and BRS Piatã were 0.52 and 0.44 kg/hd/d ( $P = 0.0039$ ), respectively. Maintaining pastures at 15 cm height resulted in higher carrying capacity but lower ADGs and lower gain per unit area than

keeping pastures at 30 cm height. BRS Piatã pastures had more encroachment of weeds at 15 cm than BRS Paiaguás.

**Table 1.** Average daily gain and carrying capacity over 3 years of 2 *Brachiaria brizantha* cultivars.

Cultivar	Rainy season	Dry season
	ADG (kg/hd/d)	
BRS Paiaguás	0.66 aA <sup>1</sup>	0.31 aA
BRS Piatã (control)	0.59 aA	0.13 bB
	Carrying capacity (AU/ha)	
BRS Paiaguás	3.60 aA	3.50 aA
BRS Piatã (control)	3.56 aA	1.8 bA

<sup>1</sup>Means for different parameters followed by different upper-case letters within columns and different lower-case letters within rows are different ( $P < 0.05$ ).

## Conclusion

BRS Paiaguás deserves the status of cultivar, based on the production of total dry matter and leaf blades and vigor, especially during the dry season, when it accumulates forage of high nutritional value, resulting in good weight gains per animal and per ha. The differences in animal performance and gain per unit area observed in the comparison trial with BRS Piatã indicate that neither cultivar should be grazed below 30 cm.

## References

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